Kentucky Awaits Record of Decision for North/South Ditch

Plans for cleanup of the North/South Diversion Ditch (NSDD) began to solidify in 2001. The Kentucky Division of Waste Management approved the Proposed Remedial Action Plan in September, and the public comment period ended in November. DOE submitted Draft 1 of the Record of Decision in late December 2001. Barring any difficulties, the project will begin construction this coming summer.

With frequent meetings and teleconferences, the project team worked to ensure that all parties could agree on the proposed plan's strategy, language and content prior to the distribution of formal plan sets. Document preparation and review followed an accelerated schedule to help the project progress toward the cleanup phase as quickly as possible.

Regulators regard cleanup of the NSDD as a high priority. The ditch, which historically received wastewater from the C-400 cleaning building, coal pile runoff and storm water, is considered one of the more heavily contaminated areas at the plant. Contaminants of concern include plutonium-239, cesium-137, uranium, beryllium, arsenic and PCBs. Several of these contaminants are the "risk drivers" guiding the cleanup strategy. The metals are "systemic toxicity" risk drivers (because of toxic effects on organ systems) and the radionuclides are cancer risk drivers.

Continued off-site migration of these contaminants is a major concern. The NSDD is surrounded by the West Kentucky Wildlife Management Area, used by more than 10,000 people every year for hunting, fishing and recreation.

The NSDD cleanup will involve several steps. First, surface runoff and process water will need to be diverted from the ditch. All process water will be hard-piped to the C-616 Water Treatment Plant and a surge basin will be built to accommodate the surface water flows that historically have drained into the NSDD. As soon as the basin is in working condition, the culverts along the plant's fence line that direct on-site surface flow to the NSDD will be cut off, blocking further drainage from flowing off site.

The section of ditch inside the plant's security fence will be remediated to industrial-use standards. Soil from this section of ditch will be excavated to depths up to four feet. This area will then be lined with clay and capped with a vegetative cover. The section of ditch outside the fence will be restored to the more rigorous cleanup levels appropriate for ecological and public recreational use.

Several critical unresolved issues could still interfere with the accelerated cleanup schedule. DOE's proposed remedial plan relies on the ability to use the on-site C-746-U landfill for disposal of 90% of the remediation waste from this project. If the C-746-U landfill cannot accept the waste for any reason, the entire plan may need to be re-evaluated. Factors affecting the use of the U landfill include: the results of a seismic evaluation (currently under way); the requirement that a new groundwater monitoring system be operational and have several rounds of samples

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collected prior to placement of waste; and the need to complete a risk assessment of the types of waste to go in the landfill. Issues also remain concerning the types of waste disposed in the ditch.

All of these issues must be resolved prior to any approval for placement of waste in the landfill. While these are all very serious issues, all parties remain committed to accomplishing the cleanup in a safe and environmentally responsible way.

By **Linda Martin**, *KY Division of Waste Management, Hazardous Waste Branch*

The ***Kentucky Environmental Oversight News*** is published quarterly by the Kentucky Department for Environmental Protection's Division of Waste Management. It features information regarding environmental remediation activities at the Paducah Gaseous Diffusion Plant site and related topics. Subscriptions are free and may be requested from Lauren McDonald (newsletter editor), Hazardous Waste Branch, Division of Waste Management, 14 Reilly Road, Frankfort, KY 40601 (502) 564-6716, FAX (502) 564-2705.

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Oversight News

Newsletter of the Commonwealth's Environmental Oversight of the Paducah Gaseous Diffusion Plant

Work to Control Contaminated Sediments Begins

Construction began on the northwest corner sedimentation basin in December 2001—a visible sign of progress for two high-priority cleanup projects at the Paducah Gaseous Diffusion Plant.

The northwest corner basin is located near Outfall 001, a discharge point along Bayou Creek. The basin will serve the scrap metal project by collecting potentially contaminated rainfall that runs off nearby scrap metal yards (see related article on page 2). In the near future, these yards will undergo cleanup, increasing the potential for contaminants to be transported in runoff.

Construction of the northwest corner sedimentation basin began in December.
Photo courtesy of **Gaye Brewer**, *KY Division of Waste Management*

The basin is also the first of a series of site-wide engineering controls designed to curb the flow of contaminated sediments into creeks of the surrounding West Kentucky Wildlife Management Area.

The Department of Energy (DOE) will include plans for the remaining basins in the Engineering Evaluation/Cost Analysis (EE/CA) for site-wide sediment control, due to regulators in January 2002. Regulators are currently reviewing a preliminary draft of the EE/CA in order to expedite the review of the official document—and ultimately help the project advance to the fieldwork phase as soon as possible. After the EE/CA receives approval from regulators, the public will have the opportunity to comment. Construction of the additional basins and controls is expected to begin this year.

The EE/CA will include plans for a sediment basin on the east side of the plant near Outfall 011 and a series of basins on the west side of the plant near Outfall 008. Outfalls 010 and 015 will use other types of engineering controls to limit sediment discharges. Outfalls 010 and 011 discharge into Little Bayou Creek, while Outfalls 008 and 015 discharge into Bayou Creek.

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Sediment Control

The EE/CA due this month will reflect extensive revisions. Last winter, a project team representing state regulators, the U.S. EPA and DOE evaluated data associated with 14 discharge outfalls that drain into Bayou and Little Bayou Creeks. The team determined that cleanup needs for nine outfalls would be addressed in the remedial investigation/feasibility study for the surface water operable unit.

Of the remaining five outfalls, the project team agreed that Outfalls 011 and 015 and the northwest corner were prime candidates for early response actions. Regulators required DOE to submit an engineering evaluation that described the details of these early actions. Regulators also recommended the inclusion of Outfalls 008 and 010 in the plans for early actions. But a draft version DOE submitted in June 2001 fell short of the remedial goals regulators had indicated they would expect the EE/CA to address.

Although reaching consensus on the early actions has required an intensive meeting schedule for the project team, the result is a much-improved plan that will focus on the sources of the most serious surface water contamination first.

By **Linda Martin**, *KY Division of Waste Management, Hazardous Waste Branch*

The northwest corner basin will prevent the spread of contaminants transported by storm runoff while scrap metal removal takes place.
Photo courtesy of **Gaye Brewer**, *KY Division of Waste Management*

Scrap Metal Project Under Way

The first two phases of the scrap metal removal action at the Paducah Gaseous Diffusion Plant began in 2001. The Division of Waste Management requires scrap metal removal because contaminated scrap metal may act as a source of contamination to soil, surface water or groundwater, and areas beneath some of the scrap yards require investigation and cleanup. The removal action involves eight scrap yards occupying about 25 acres of the plant's northwest corner and a classified scrap yard on the plant's northeast side.

Field activities for removal of 2,000 tons of aluminum ingots began on Oct. 15, 2001. These ingots had been in classified storage because of incomplete smelting that allowed the recognition of classified shapes. The aluminum ingots are slated for shipment and classified disposal at the Department of Energy's Nevada Test Site. Early analytical results from testing the ingots have determined the need for more sampling and documentation to meet the Nevada Test Site's acceptance requirements.

Regulators required that storm water runoff controls be in place before removal of the rest of the scrap metal. Accordingly, DOE submitted plans for the northwest corner sedimentation basin. In September, regulators approved the design of the basin, which will prevent the migration of contaminated sediments from the scrap yards to off-site areas while scrap removal occurs. Field activities for the northwest corner basin began on Nov. 12, 2001. An early field-start (ahead of schedule) allowed DOE contractors to take advantage of unseasonably mild fall weather and begin basin construction. However, rains slowed the project somewhat in mid-December.

The scrap metal removal project will include eight scrap yards located in the northwest corner of the plant.
Photo courtesy of **Todd Hendricks**, *KY Division of Waste Management*

The removal action work plan for the third phase, the actual removal of scrap metal, is due to the division and the U.S. EPA on Jan. 31, 2002. Fieldwork for scrap removal is scheduled to begin in May 2002.

By **Mike Guffey**, *KY Division of Waste Management, Hazardous Waste Branch*

Work to Characterize DOE Material Storage Areas Begins

The labor-intensive effort to characterize and remediate DOE Material Storage Areas (DMSAs) began in June 2001.

The Department of Energy identified 160 areas known as DMSAs, where DOE stored wastes that were not characterized and inventoried. Discovery of these areas led the state to determine that DOE had violated hazardous waste statutes and regulations and its hazardous waste permit by failing to properly characterize the wastes stored in the DMSAs. A Notice of Violation (NOV) issued Sept. 5, 2000 required DOE to formally notify the state of these storage areas and properly characterize and manage all wastes within them according to state laws and regulations.

DOE submitted a revised characterization work plan on April 16, 2001 as required by the September 5, 2000 NOV. Although a conflict still exists between the Kentucky Division of Waste Management and the DOE concerning certain aspects of the characterization work plan, DOE has begun work pursuant to the plan. The ongoing fieldwork includes making an inventory of the DMSA contents; addressing nuclear criticality safety concerns; determining if the waste is hazardous, nonhazardous, mixed, TSCA (Toxic Substances Control Act, pronounced "TOS-ka") or radioactive; sampling and analysis; and waste packaging and storage. To date, the Division of Waste Management has approved work packages for the characterization and remediation of 33 DMSAs. Fieldwork is complete in eight DMSAs and continues in the rest. The work plans for characterization and remediation of additional DMSAs are submitted and reviewed on a continuing basis.

Over the course of the summer, field activity expanded from two teams to six. To support this work, a new staging area inside the plant fence was built from the ground up. However, field activity was slowed due to increased security requirements after September 11, 2001. A lack of security-cleared workers decreased the number of teams in the field from six back to two, since many of the DMSA employees were new and their security clearances had not been completely processed. Work is slowly returning to levels before Sept. 11, although access to several areas remains restricted for personnel without clearance.

By **Gaye Brewer**, *KY Division of Waste Management, Hazardous Waste Branch*

Corrosion Spurs Large-Scale Monitoring Well Replacement Effort

During the past year numerous corroded stainless steel monitoring wells have been identified at the Paducah Gaseous Diffusion Plant (PGDP) site. While the cause of the corrosion remains somewhat a mystery, microbes (bacteria) may play a large role. Another suspected cause is the flow of subsurface electrical currents in and out of the well casings. Whatever the reason, the result is a corroded monitoring well casing that in many instances must be replaced.

To date, six wells have had to be abandoned and two replaced due to corrosion (abandonment refers to removing a well casing and sealing the well bore to prevent the entry of surface contaminants and the mixing of groundwater from different aquifers). Four of the abandoned wells were located north of the plant near three on-site solid waste landfills (the C-746-S, -T and -U landfills). The two wells that were abandoned and replaced were located near the C-404 hazardous waste landfill. Since these wells serve as part of the C-404 landfill's leak detection monitoring system, it was critical to replace them soon after corrosion was discovered.

Nearly all of the monitoring wells that comprise the monitoring systems for the C-746-S, -T and -U landfills show evidence of corrosion and will therefore need to be abandoned. The Department of Energy has submitted work plans to the Kentucky Division of Waste Management that describe the details behind this large-scale well replacement effort. All wells designated for abandonment will be replaced with wells constructed using corrosion-resistant PVC casing materials.

Many of the 300-plus monitoring wells at the PGDP were constructed using stainless steel casing. Stainless steel was selected because it is typically corrosion resistant and does not contain readily leachable chemicals that might contaminate a new monitoring well. Unfortunately, stainless steel well casing does not appear to be very durable in the vicinity of the PGDP.

Officials still do not know how pervasive the corrosion problem is at this site. Other site wells will need assessment on an individual basis to determine if the corrosion problem is limited to discrete areas or is more widespread.

By **Todd Mullins**, *KY Division of Waste Management, Hazardous Waste Branch*

DOE contractors examine monitoring well casings for signs of corrosion.
Photo courtesy of **Todd Hendricks**, *KY Division of Waste Management*